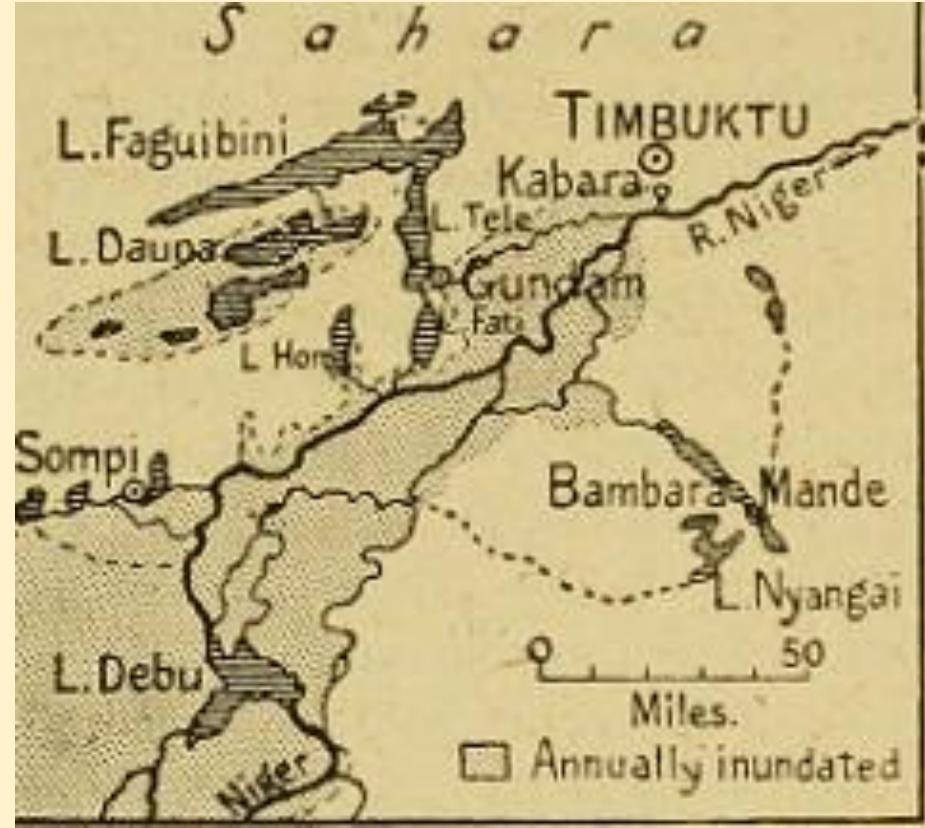


# Islam and Technological Influences in Timbuktu

By Eric Spencer

# Outline

- Timbuktu's History
- Islamic Influence by Mansa Musa
- The Importance of Scholarship
- Mathematics & Astronomy
- Medicine and Health
- Islamic Law
- History and the Preservation of it
- Decline and Legacy



*"The International Geography"* (Page 982)

# The History of Timbuktu

“Timbuktu is perhaps best known as a metaphor for the most remote and far-flung corner of the globe,” (Insoll, 51)

- Founded by nomads in about A.D. 1100 (1) and was then maintained by slaves under the influence of an old woman named Buktu. <- (Myth)
- The Golden Age was brought on by Islamic influences where universities and scholarship emerged.
- Declined after a Moroccan invasion of the Songhai Empire invaded.

السعدي, عبد الرحمن. المجموعة الكاملة لمؤلفات الشيخ عبد الرحمن بن ناصر السعدي

(1) [Collected Works of Sheikh Abdul-Rahman al-Sa'di].



Insoll, Timothy A. “**The Road to Timbuktu: Trade & Empire.**” *Archaeology*, vol. 53, no. 6, 2000, pp. 48–52. JSTOR, <http://www.jstor.org/stable/41779369>. Accessed 16 Sept. 2024.

# Trade Through Timbuktu

- Gold
- Salt
- Slaves
- Ivory
- Textiles
- Books
- Grains
- Copper
- Horses
- Spices



# Similar Cities to Timbuktu

- Gao
  - Djenne
  - Walata (South-East Mauritania)
  - Fez (Morocco)
  - Tunis (Tunisia)

The role that Timbuktu had as a middleman in the salt-gold business made it more economically important than these other cities. (1)



# Timeline



## AD 1235, The Mali Empire, **Sundiata Keita**

## AD 1100s, foundation

## AD 1327, Djinguereber Mosque construction

## AD 1200s, Recognition as a prime trading post

**AD 1312 to 1337, Mansa Musa rules the Mali Empire**

## AD 1324, Mansa Musa's Hajj

AD Late 1400s, University  
of Sankore renovated

AD 1433, Tuareg nomads  
**capture** Timbuktu

**AD 1468, Songhai Empire takes control of Timbuktu**

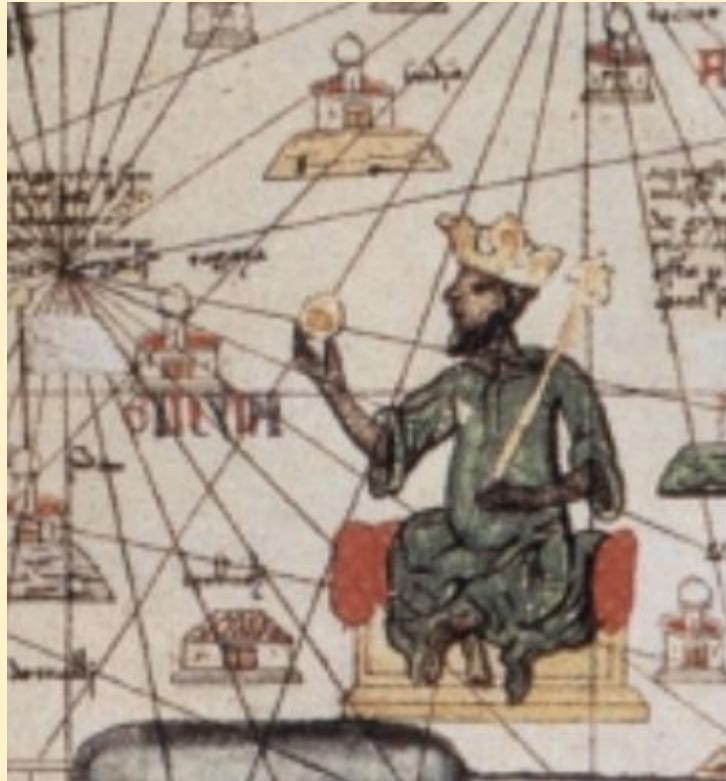
AD 1493-1528, Songhai Empire expands, Timbuktu reaches its **peak** as center of learning and trade

AD 1960,  
Timbuktu is a  
part of Mali  
after the  
decolonization  
of French West  
Africa



# A Brief History of Mansa Musa

- The wealthiest person in history
- Devout Muslim
- World-famous due to his pilgrimage
  - In Africa and in Europe
- Arguments that he was the peak of the Mali Empire instead of the Golden Age that would come after his death



Catalan Atlas of 1375

# Islam and Mansa Musa

- Was Muslim due to the North African and Middle Eastern trade networks
- Reflected Islamic values in his contributions and personal efforts (such as Hajj)

# The Hajj of Mansa Musa

- 8,000 courtiers, 12,000 servants, and 100 camel loads of pure gold (1)
- “Each night when they stopped, it was like a whole town decamping in the desert,” (1)
- When he visited Egypt he caused the price of gold to devalue for the next 10 years due to his spending (2)

1. *“A Golden Age: King Mansa Musa’s Reign”*  
Stephanie Kulke, Northwestern Magazine Spring 2019
2. *“10 richest people who ever lived”* Faye Bradley,  
SCMP magazine, Oct 29, 2022



# Mansa Musa's Contribution to Timbuktu Architecture

The Djinguereber Mosque / Great Mosque of Timbuktu 1325-1327

- 200kg of gold for its construction = \$16,534,164 USD (Sep 2024)
- Abu Ishaq al-Sahili's Islamic/traditional African hybrid design
- The Madrasas formed the University of Timbuktu



# Mansa Musa's Contribution to Timbuktu Architecture

## Sankore Mosque and University of Sankore

- Mansa Musa expanded the existing Mosque
- Housed many texts



# Mansa Musa's Contribution to Timbuktu Architecture

## Arabic Architecture after Hajj

- Fired bricks instead of sun-dried bricks
- Arabic/African blend designs (Sudano-Sahelian)



# Timeline



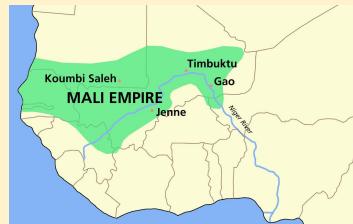
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AD 1468, **Songhai Empire** takes control of Timbuktu

AD 17-19th centuries, Jihadist and Colonial Influences such as Rene Caillie and France

AD 1493-1528, Songhai Empire expands, Timbuktu reaches its **peak** as center of learning and trade

# Mansa Musa's Contribution to Knowledge

- University of Sankore
  - The Hajj brought back the best scholars and teachers of not only Islam but of Math, Astronomy, Medicine, etc.



# Askia Muhammed I / Muhammed ibn Abi Bakr al-Turi

- The ruler of the Songhai Empire which had annexed Timbuktu and much of the Mali empire in the late 1400s and early 1500s
  - The promotion of scholarship ruled strong still (1)
  - Introduced common weights and measures (1)

1. “*Askia Muhammed I*” World Eras,  
Encyclopedia.com, September 11, 2024



# Timeline

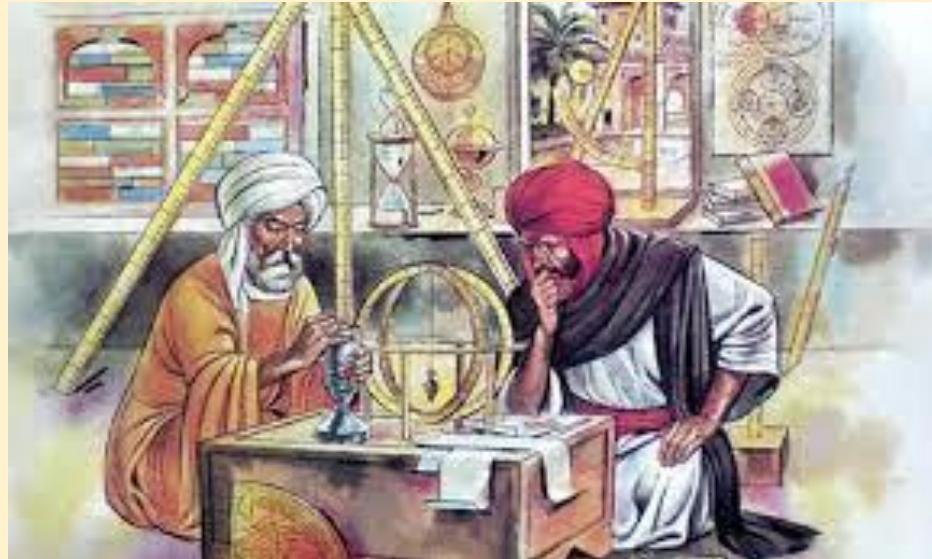


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# Key Takeaway

Timbuktu was evolved from a simple trading post to a large scholarly city due to Islamic rulers prioritizing furthering Islamic study with financial allocation.



# Scholars in Timbuktu

Ahmad Baba Al-Timbuktu 1556 - 1627

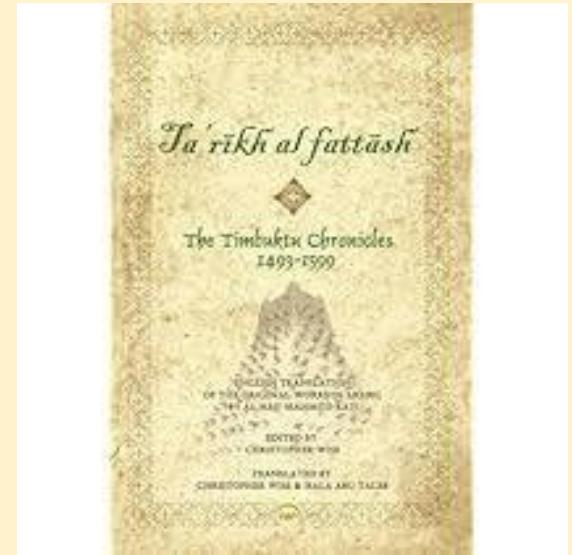
Mahmoud Kati 1468 - 1552ish

Abderrahman es-Sa'di 1596 - 1655 (1)

1. Harrow, Kenneth W. "Islamic Literature in Africa" Chapter 23, Ohio University Press

# Mahmoud Kati (1468 - [1552 or 1593] )

- Supposed author of the *Tariikh al-Fattash* (2)
  - A manuscript of rulers during the time in Timbuktu (1)
  - The famous version to the right is a 19th century copy while the original is lost (1)
- Contributed to the legacy of Timbuktu's Golden Academic age
- Doctor of Islamic law at Sankore
- Was an advisor to Askia Muhammed (mentioned earlier), ruler of the Songhai Empire (2)



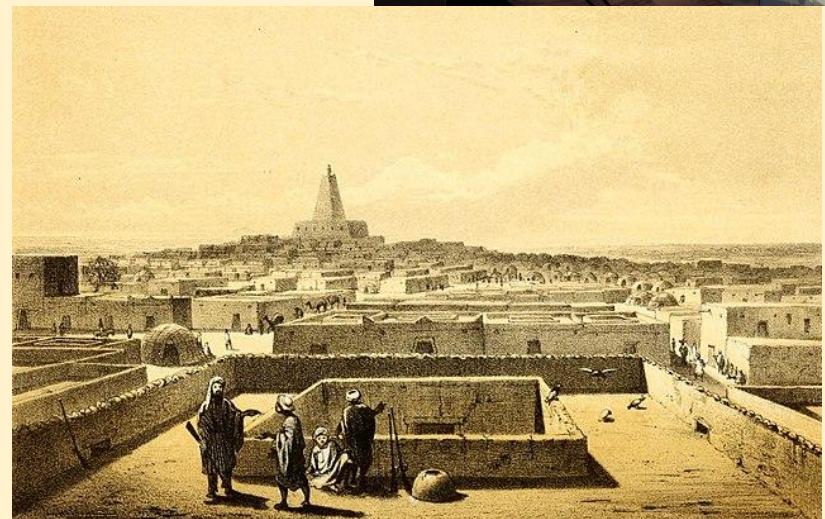
1. Nobili, M., & Mathee, M. S. (2015). Towards a New Study of the So-Called *Tārikh al-fattāsh*. *History in Africa*, 42, 37–73. doi:10.1017/hia.2015.18
2. Rouch, J. Pierre (2024, March 28). Muhammad I Askia. Encyclopedia Britannica. <https://www.britannica.com/biography/Muhammad-I-Askia>

# Ahmad Baba al-Timbuktu (1556 - 1627)

- Top scholar of Arabic law and Islamic sciences
- Known for his *fatwas* or opinions on Islamic teaching
- Taught at famous universities such as Sankore
- Radical stance on slavery:

“All Muslims are equal under God”

1. Hamadou, Adama, “Admad Baba at-Timbuktu” Oxford Research Encyclopedia, Nov 29, 2021



# Question #1

Based on the evidence provided, do you believe that Timbuktu could have flourished as much as it did without rulers prioritizing Islamic scholarship?

Which came first, the education or the economy?



# *The Islamic Golden Age*

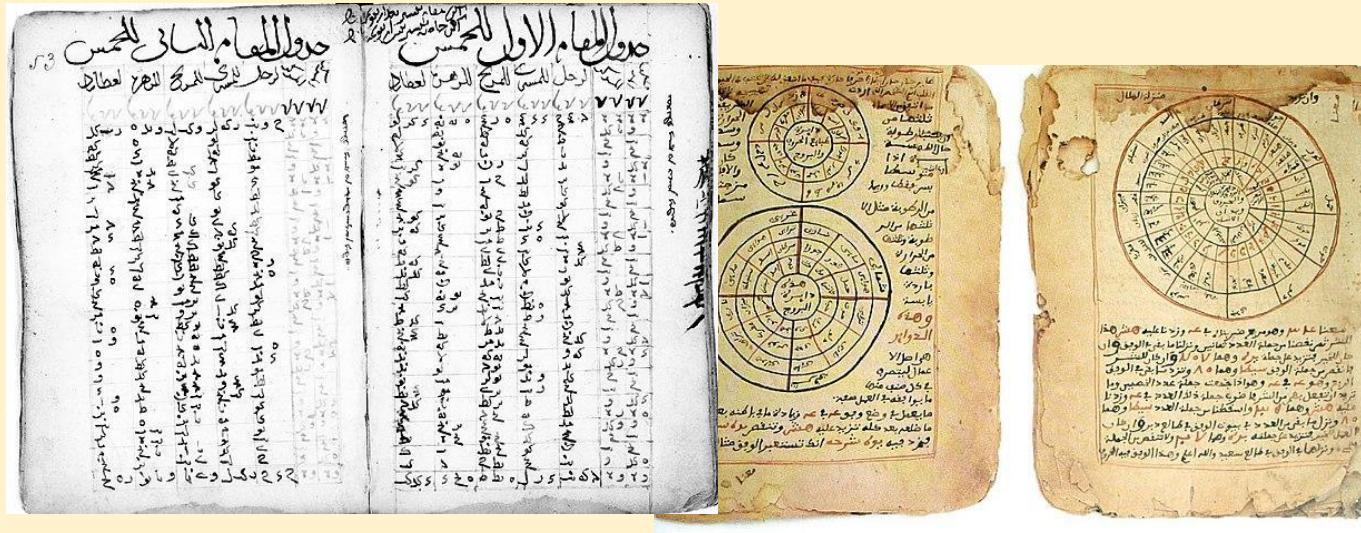
## Significant strides within:

- Astronomy, more interest of research into the Heavens; the Qur'an
  - Medicine
  - Islamic Law



# Astronomy

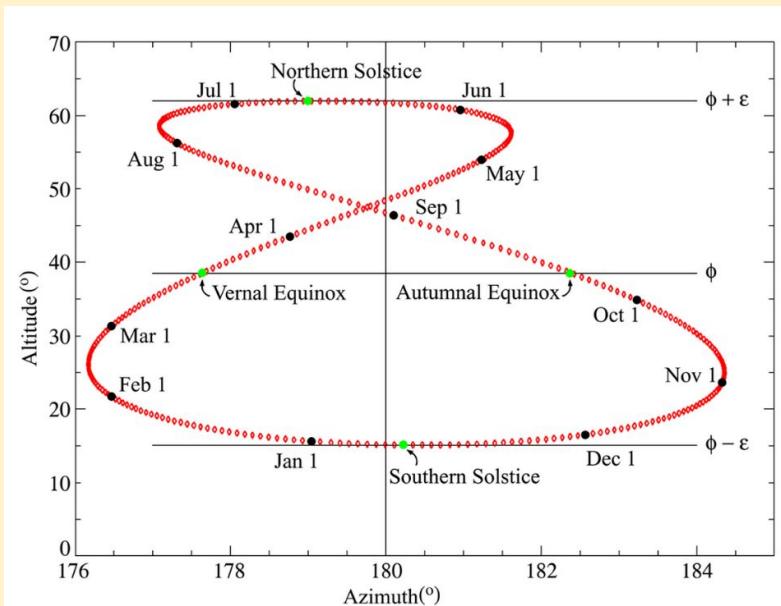
- Zij tables, from Zij al-Sindhind, mapping Earthly coordinates within Solar System
- Tusi-couple
- Astrolabe



1. HandWiki. (2022, November 24). Astronomy in the Medieval Islamic World. In Encyclopedia. <https://encyclopedia.pub/entry/36268>

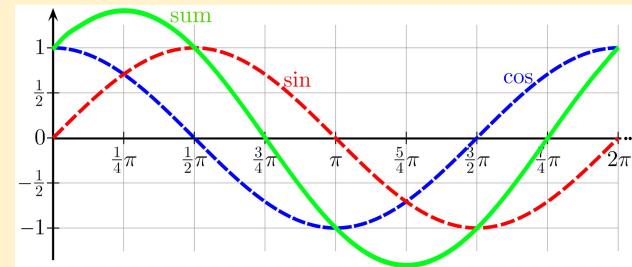
# Analemma

- Greek mathematician Ptolemy
  - Describes the distance the sun is from Earth (Earth-Centric Solar System)
  - Islamic Philosopher Al-Farabi made connections between metaphysical world and real world due to this Mathematical representation of Astronomical figures
1. HandWiki. (2022, November 24). Astronomy in the Medieval Islamic World. In Encyclopedia. <https://encyclopedia.pub/entry/36268>



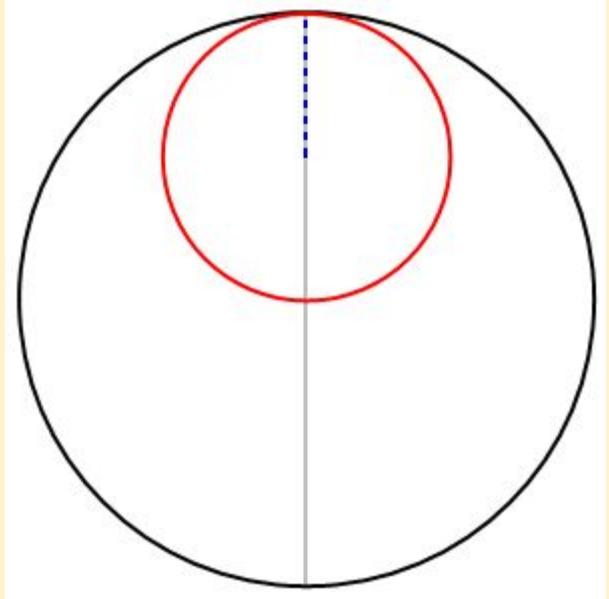
# Sine Function

- India to describe half-time wave functions (“Jya”)
- 8th Century, Sanskrit texts translated to Arabic (-> “Jiba” -> “Jaib”) by Al-Battani, who performed research on the function
- 12th Century, Europe mistranslated “Jaib” -> “Sinus”



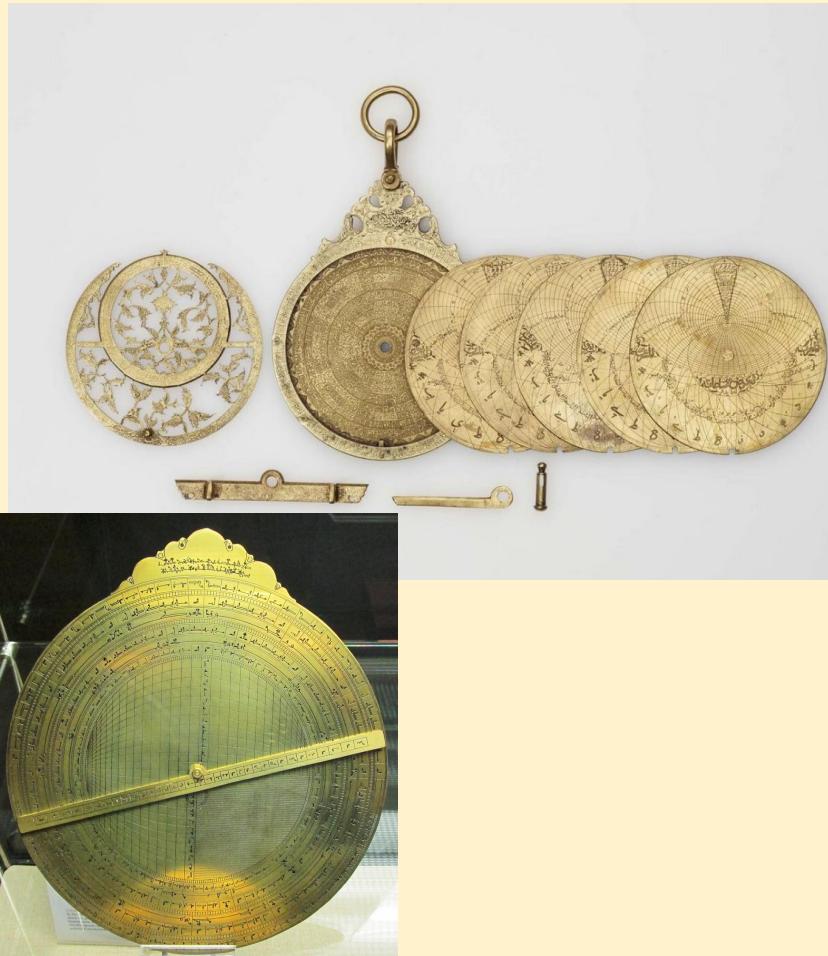
# Tusi Couple

- By the 9th century, Islamic mathematicians recognized the faults with Ptolemy's calculations
- Developed by Nasir al-Din al-Tusi
- Criticized the Ptolemaic view of the solar system
  - Instead, Sun is center of solar system
- Imagine the center of the blue stick is Earth
- The part where blue stick touches red is Moon
- Middle of black circle is Sun



# Astrolabe

- Portable model of the Solar System
  - Useful for Qibla (towards Mecca)
  - Sun's position (Prayer times)
  - Naval navigation
- 
- Evolved the Astrological Quadrants
    - Measuring the distance from one solar system object to another

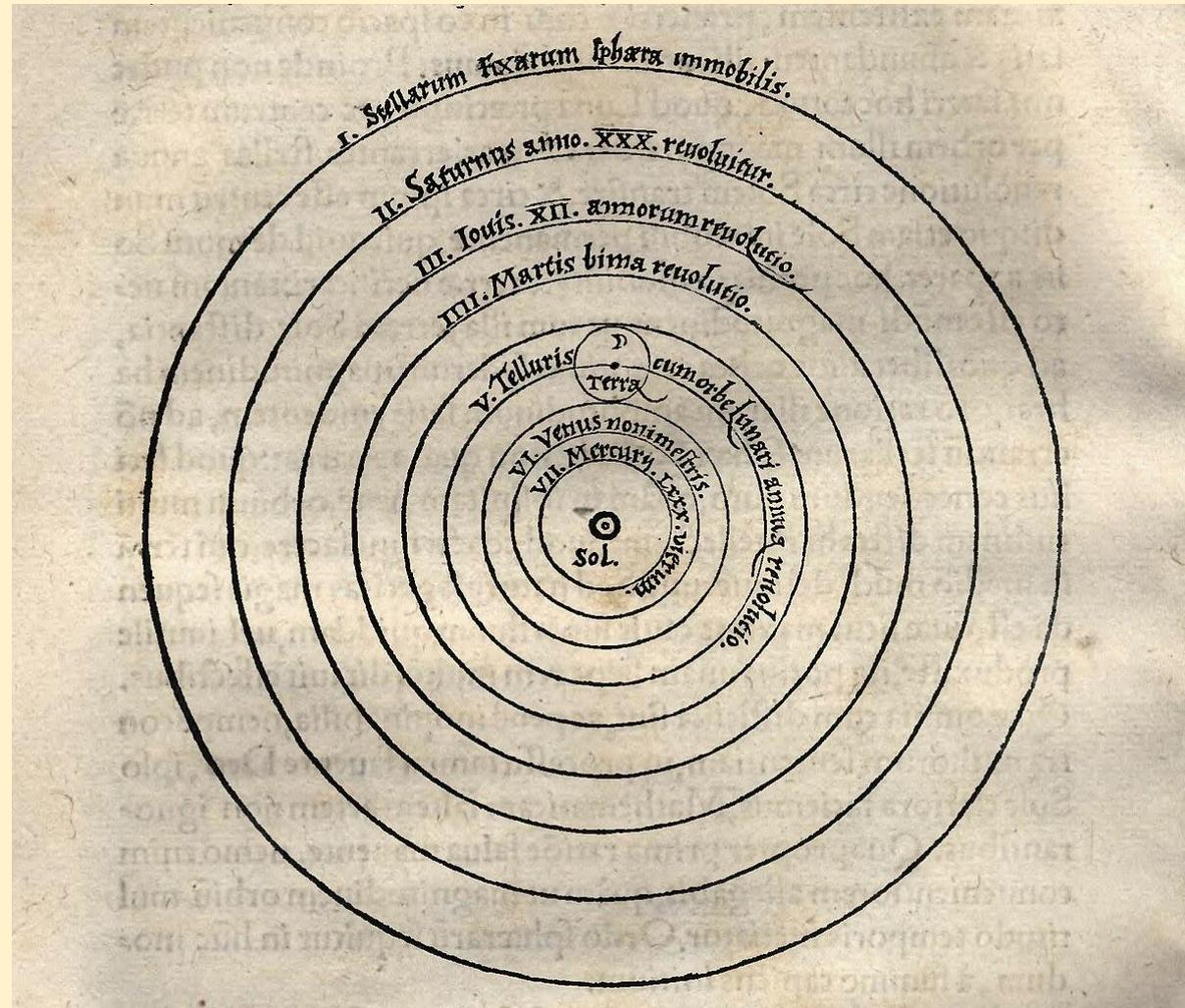


# Heliocentrism

Sun is at center

Credited to Copernicus in  
14th Century Europe

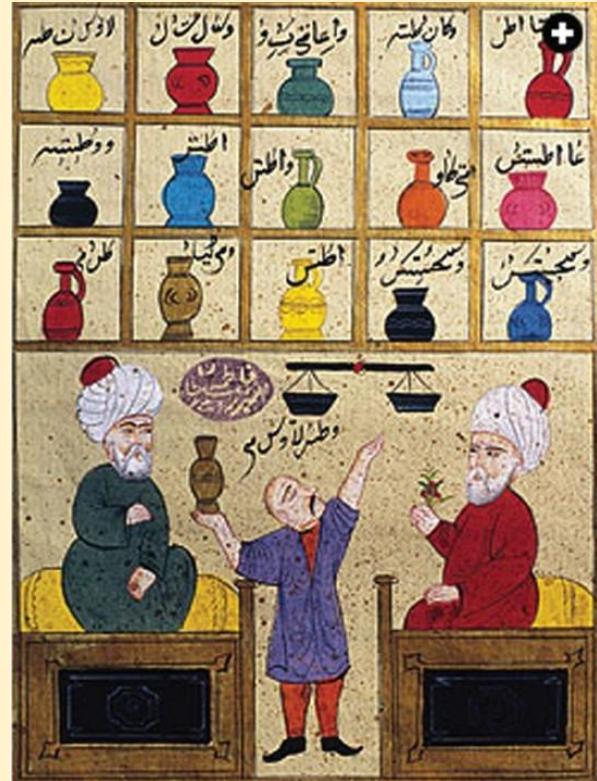
Based off contributions by  
Islamic scholars many  
centuries before



# Medicine

- Hospitals were funded by Zakat (donations)
- Ibn Sina, *The Canon of Medicine*
- Pharmacies
- Advancements in Anatomy

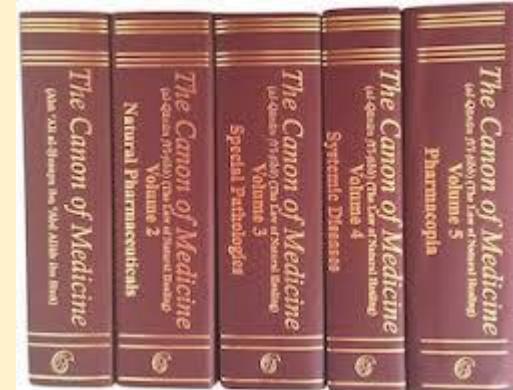
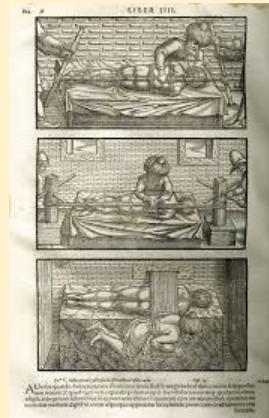
Built upon advancements made by Greek and Romans



1. Hajar R. The Air of History Part III: The Golden Age in Arab Islamic Medicine An Introduction. Heart Views. 2013 Jan;14(1):43-6. doi: 10.4103/1995-705X.107125. PMID: 23580929; PMCID: PMC3621228.

# *The Canon of Medicine*

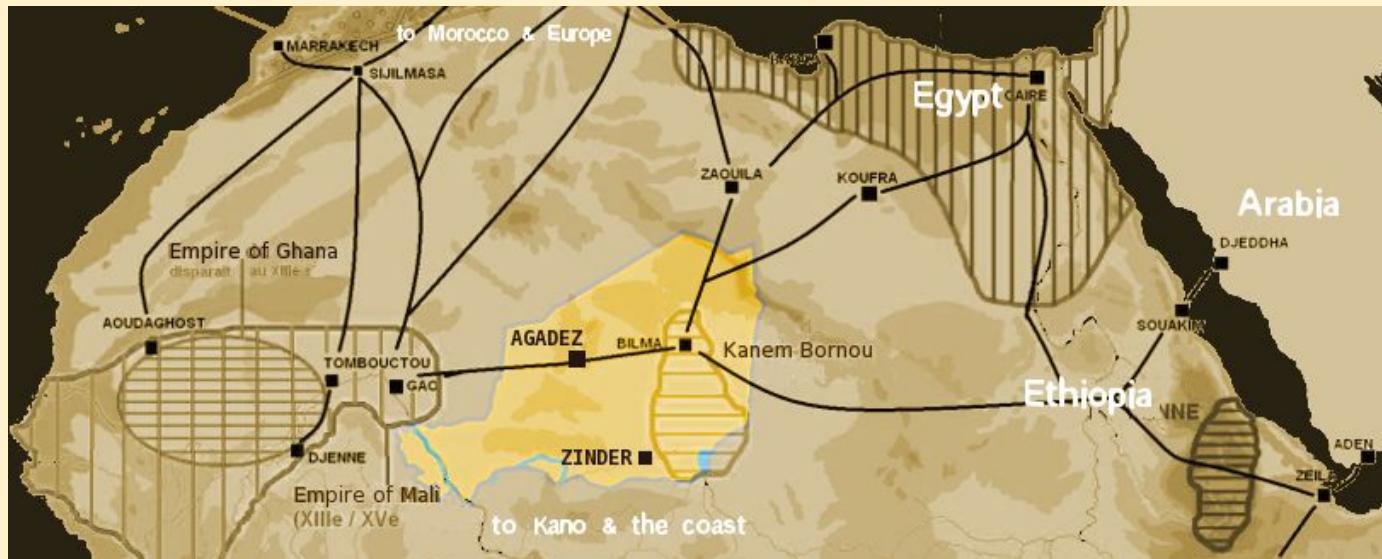
- Encyclopedia of Medicine
- Comprehended by Ibn Sina, all known knowledge by 9th Century
- Important to learning medicine and was responsible for advancements



1. Amr SS, Tbakhi A. Ibn Sina (Avicenna): the prince of physicians. Ann Saudi Med. 2007 Mar-Apr;27(2):134-5. doi: 10.5144/0256-4947.2007.134. PMID: 17420624; PMCID: PMC6077049.

# Islamic Law

- Timbuktu made contributions through Sankore University
  - Ahmed Baba
- As trade flowed through the city, so did teachings (both in and out)



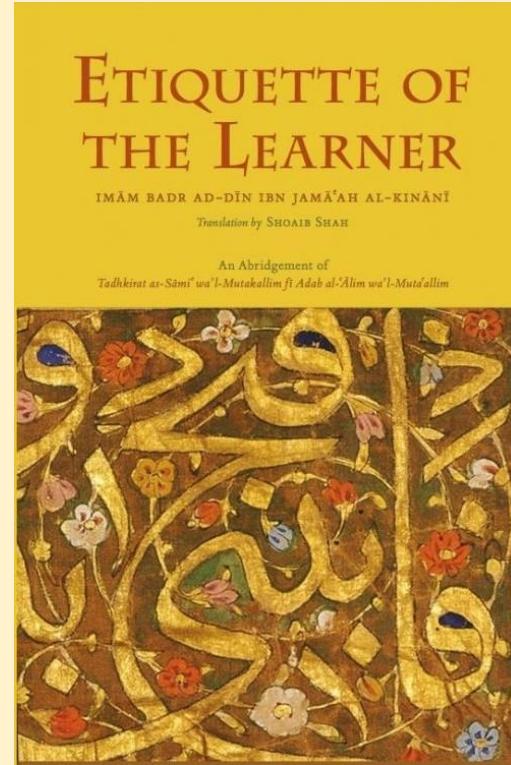
# *Etiquette of the Scholar*

- Ahmed Baba
- How to live life humbly through Islam

All actions should point towards Allah

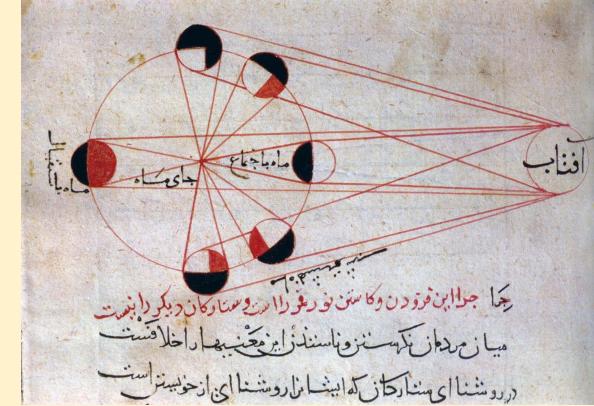
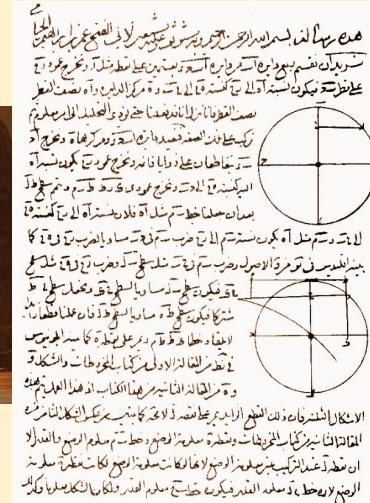
Lifelong learning

Be content with little



# *The Islamic Golden Age's effect on Timbuktu*

- Advancements in math, astronomy, philosophy, and literature
    - Translate ancient texts from Greek, Persian, Indian sources
  - Building Sankore University + other madrasas
  - Grand Mosques built (Sankore, Djingareyber, Sidi Yahia)



# Timeline

AD 1100s, foundation	AD 1235, The Mali Empire, <b>Sundiata Keita</b>	AD 1327, <b>Djinguerereb</b> Mosque construction	AD 1433, Tuareg nomads capture Timbuktu	AD Late 1400s, University of Sankore renovated	AD 1591, Moroccans invade Songhai, <b>beginning of the downfall of Timbuktu</b>	AD 1960, Timbuktu is a part of Mali after the decolonization of French West Africa
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# The Fall of Timbuktu

16th Century:

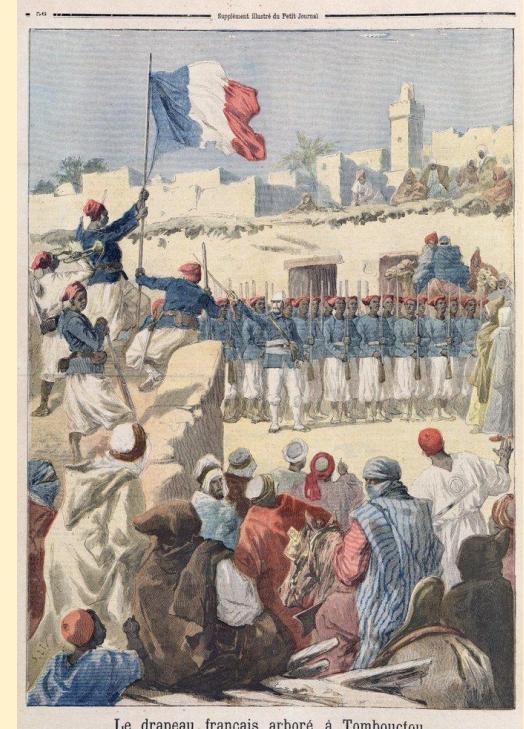
- Moroccan Invaders drove out scholars (A. Baba)
- Trade routes were shifting to the coast

18th Century:

- Jihadists take over and burn ancient non-religious texts

19th Century:

- French colonization of “Tombouctou”

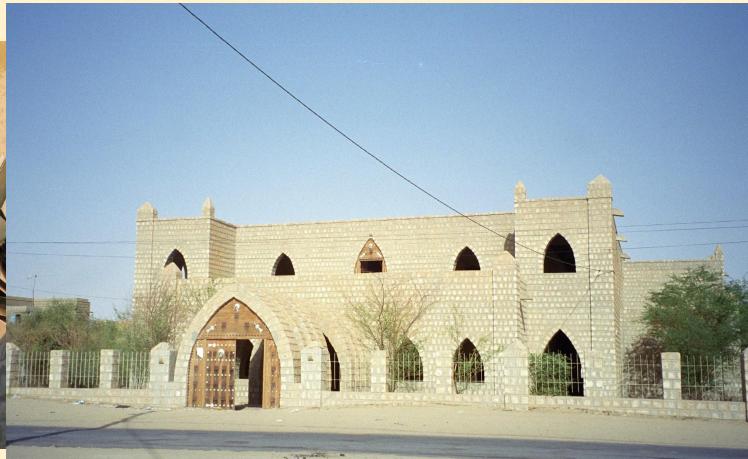


Le drapeau français arboré à Tombouctou

1. Brown, Tyson "A Guide to Timbuktu" National Geographic Society, <https://education.nationalgeographic.org/resource/guide-timbuktu/>, accessed Oct 19, 2024

# The Loss of Historical Knowledge

- Many texts lost due to time or intentional destruction
- Credits to ideas are likely misattributed



# Legacy of Timbuktu

- Historical city with many Islamic influences
- The importance of religious studies still lives on today through restoration efforts of the manuscripts / Mosques and Madrasas



1. Brown, Tyson "A Guide to Timbuktu" National Geographic Society, <https://education.nationalgeographic.org/resource/guide-timbuktu/>, accessed Oct 19, 2024

# Closing Question

While Timbuktu had notable original ideas, it's main contributions to technology, Islam, etc were through evolving existing ideas.

Should people who evolve ideas get as much credit as those who invent them?

